



## The Road to Clean Air

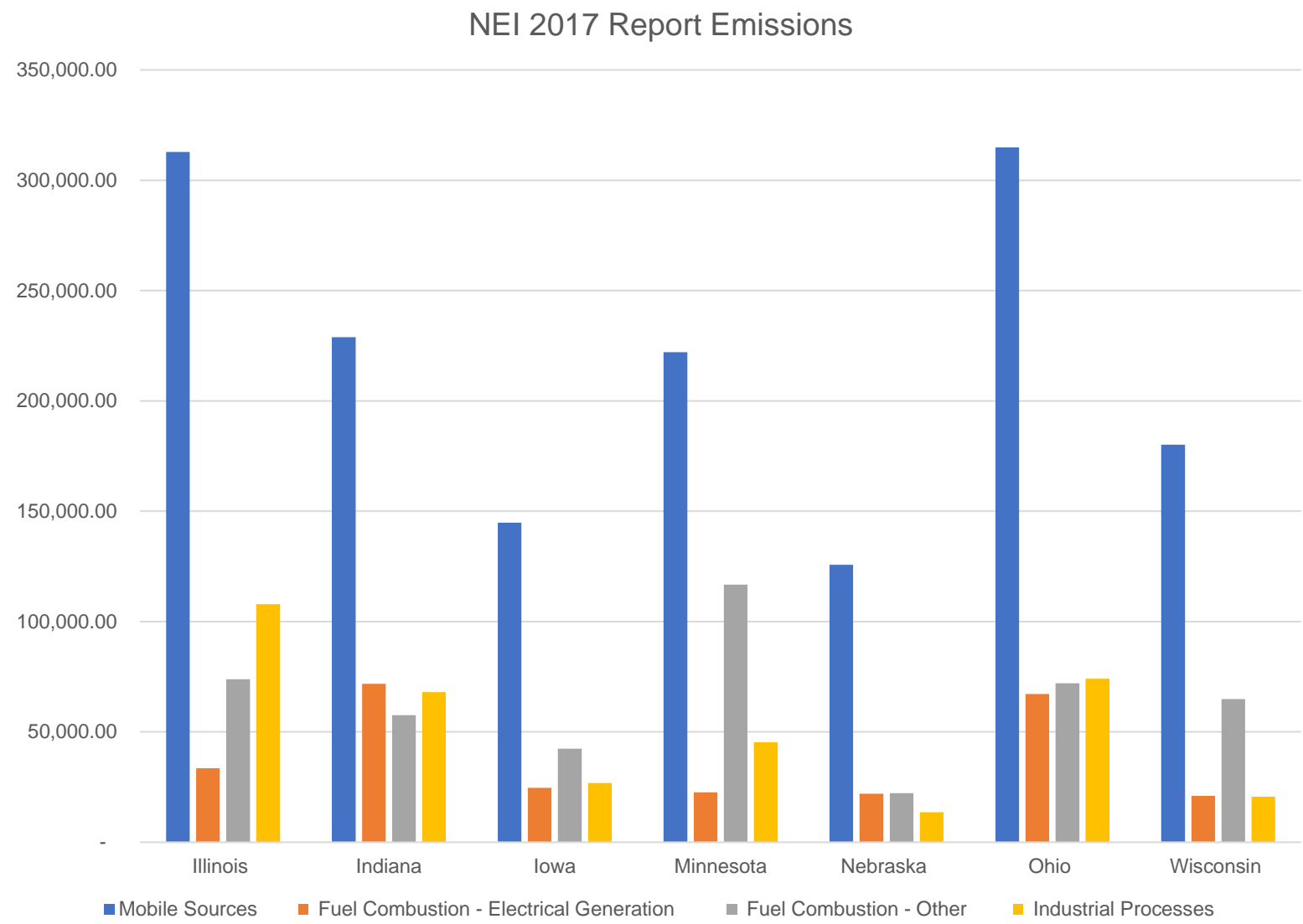


Benefits of a Nationwide Transition  
to Electric Vehicles

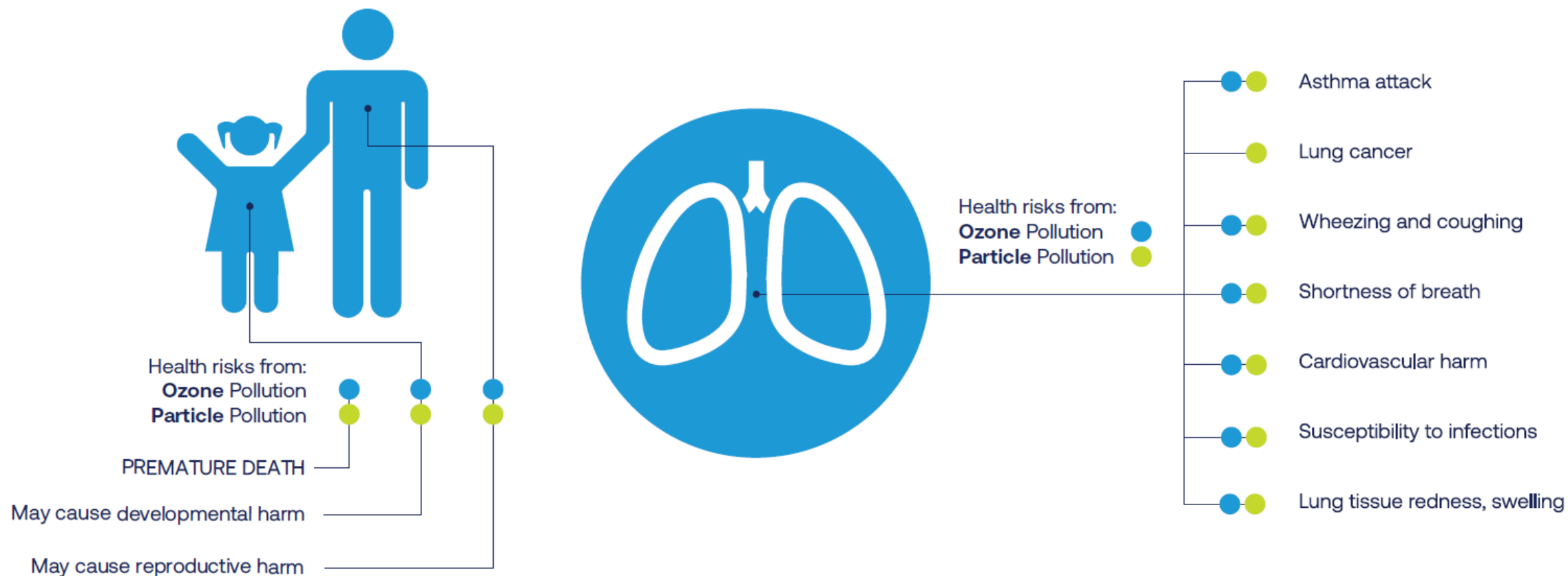
Angela Tin

National Senior Director, American Lung Association  
Co-Coordinator, Chicago Area Clean Cities

# Mobile Sources Cause the Most Air Pollution



## Air pollution remains a major danger to the health of children and adults.



- COVID-19 and Air pollution



	BASELINE AIR POLLUTION	INCREASE IN AIR POLLUTION : COVID
Hazardous air pollutants	Respiratory hazard index	9% increase in COVID cases
Global particulate matter	Particulate matter	15% increase in COVID mortality (nationwide)
U.S. particulate matter	Increase in <u>1<math>\mu</math>g/m<sup>3</sup> in long-term PM</u>	11% increase in the COVID-19 mortality rate
Nitrogen dioxide	Increase in <u>4.6 ppb increase in NO<sub>2</sub></u>	11.3% increase in case-fatality rate and 16.2% increase in mortality

# The Road to Clean Air

## Benefits of a Nationwide Transition to Electric Vehicles

“The Road to Clean Air” highlights the potential for major public health and climate change benefits of widespread electrification of the transportation sector.

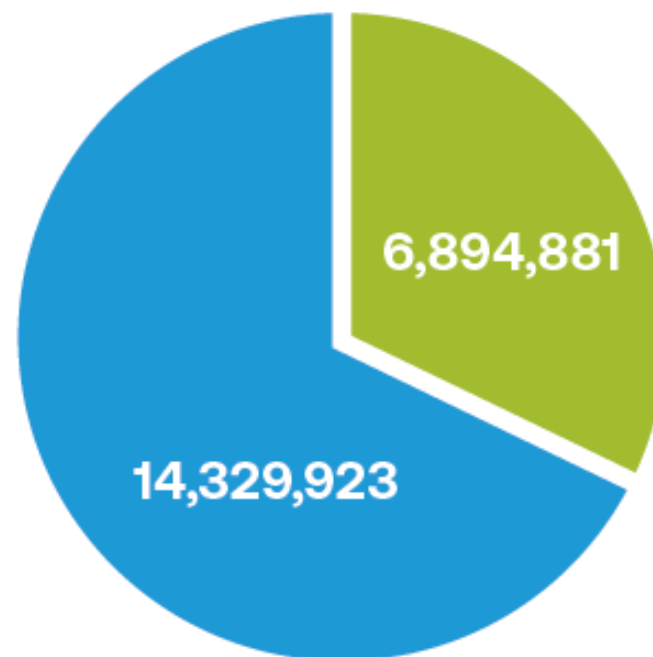


## State of the Air 2020

Americans Living in Counties  
with 3 Failing Grades:

Ozone Days, Particle Days,  
Annual Particle Levels

- White
- People of Color



***“Far too often, clean air is out of reach for communities living near major pollution sources, including highways, ports and power plants. Communities of color are disproportionately harmed by poor air quality in the United States.***

***The time to act on electric transportation is now.”***

**Harold Wimmer**  
President and CEO  
American Lung Association

# Electric Vehicle Scenario

## 100 percent Zero Emission Vehicle Sales by Category

National scenario focused on deployment of zero-emission technologies across the transportation sector, with sales in ten classes of vehicles ramping up to 100 percent.



- Compared against Business As Usual Fleet per US EPA MOVES model.



# National Electric Grid Mix Scenario

Scenario	Year	Residual Oil	Natural Gas	Coal	Nuclear	Biomass	Renewable
AEO	2018	0%	37%	24%	19%	1%	19%
AEO	2050	0%	36%	14%	12%	0%	38%
ALA	2050	0.1%	43%	2%	12%	0.4%	43%

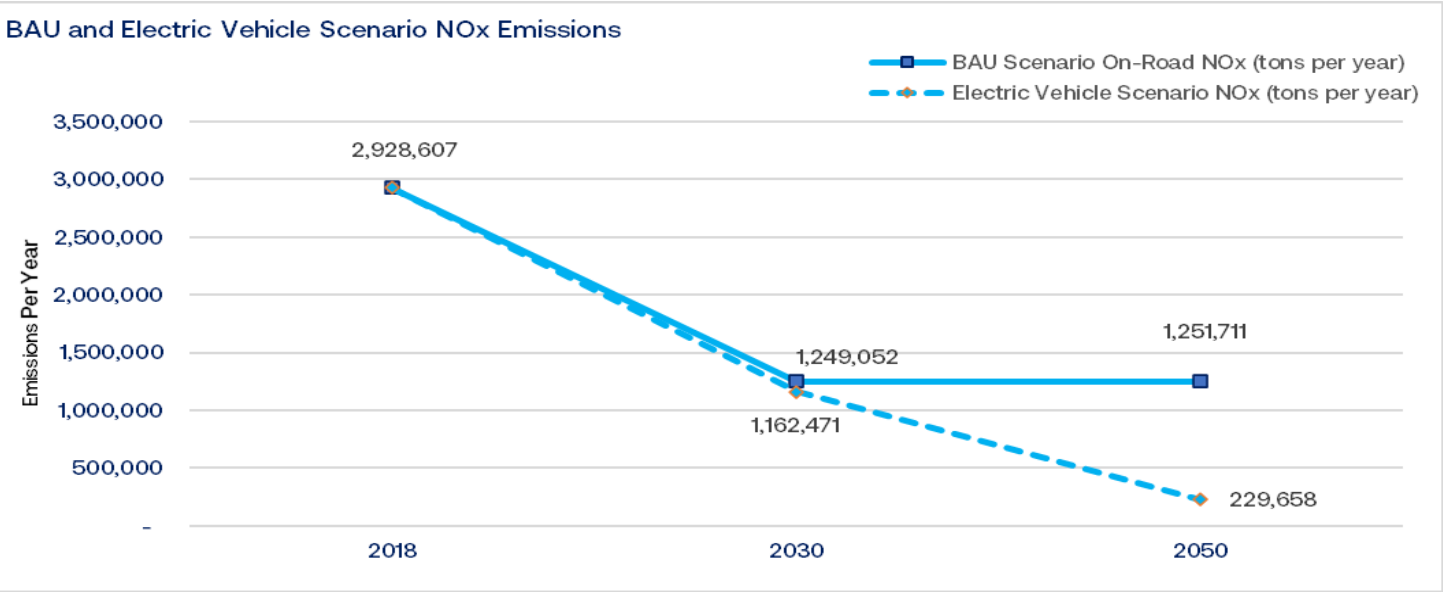
AEO – US Energy Information Agency Annual Energy Outlook

ALA – Scenario informed by Bloomberg New Energy Outlook

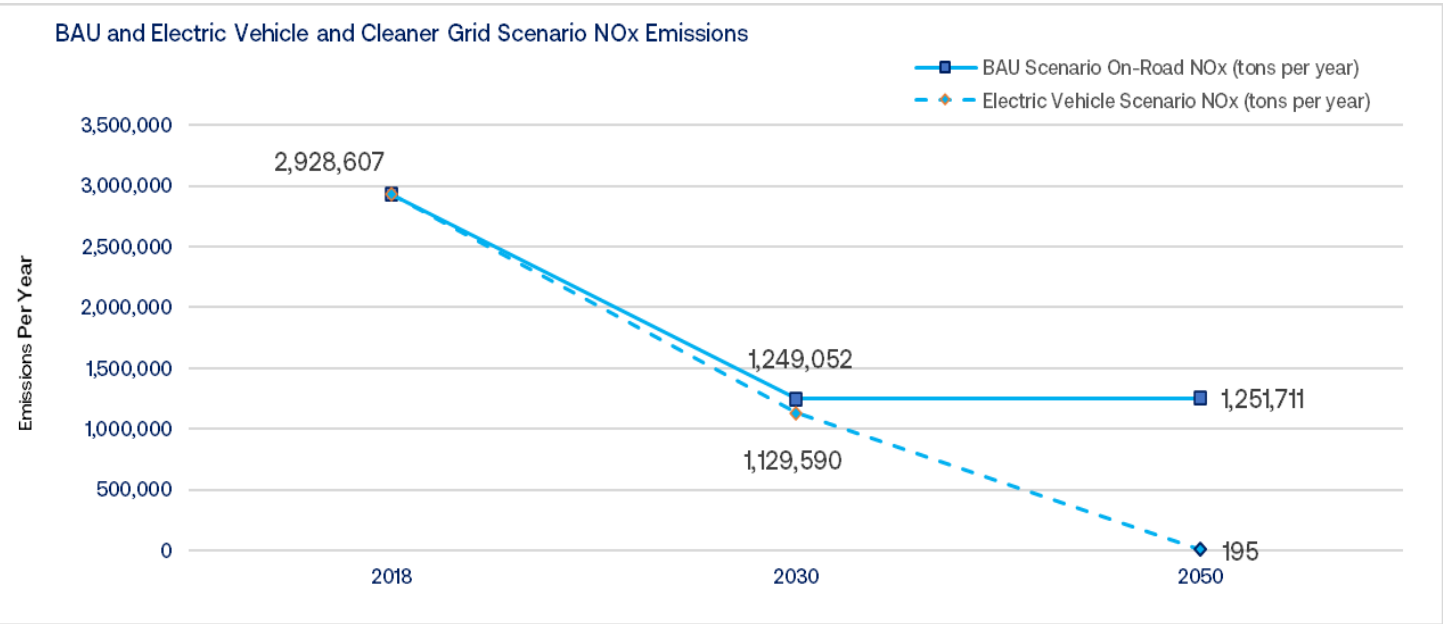
# Comparison of On-Road Emissions Between Baseline and Electric Vehicle Case

## NOx Emission Reductions

On Road BAU  
Fleet  
vs  
EV Scenario  
Fleet



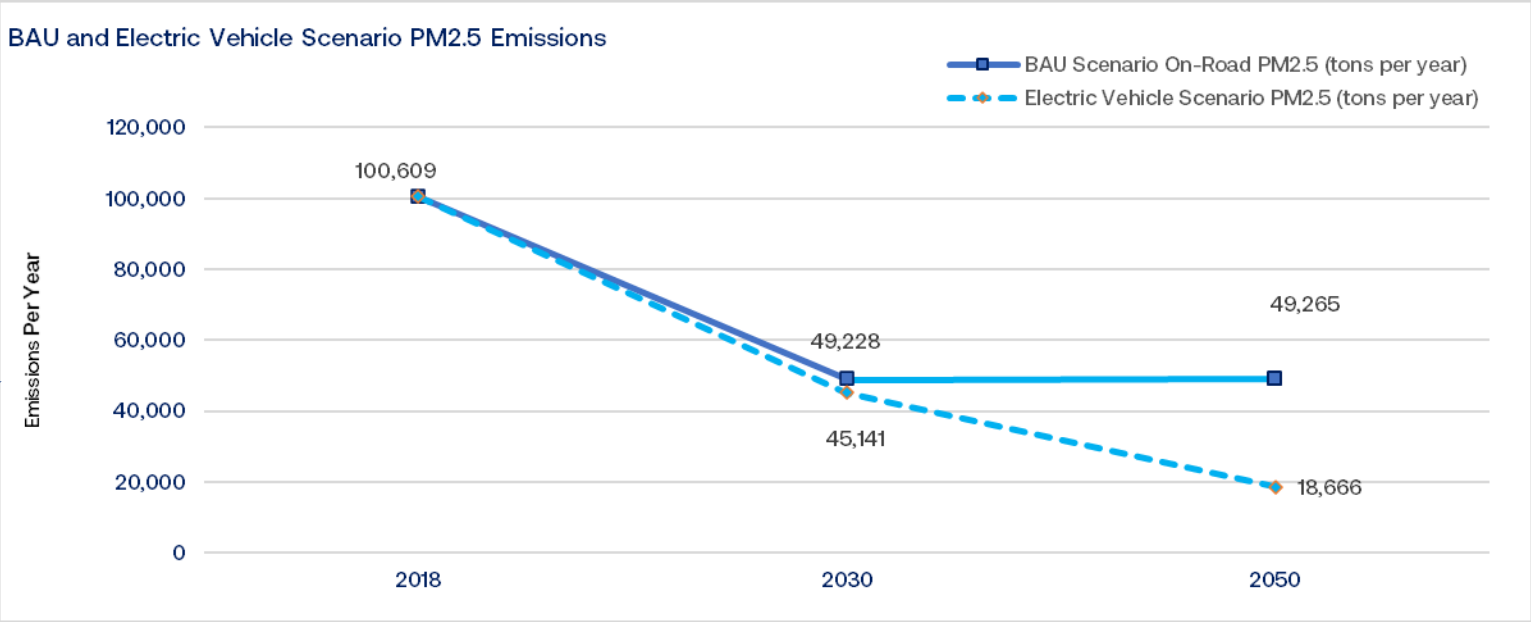
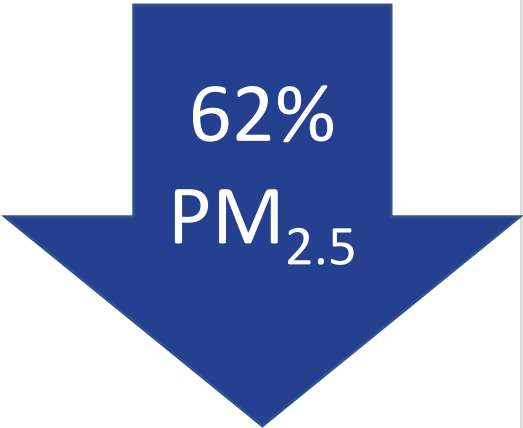
On Road BAU Fleet  
vs  
EV Scenario Fleet  
+  
Upstream Emissions  
Changes



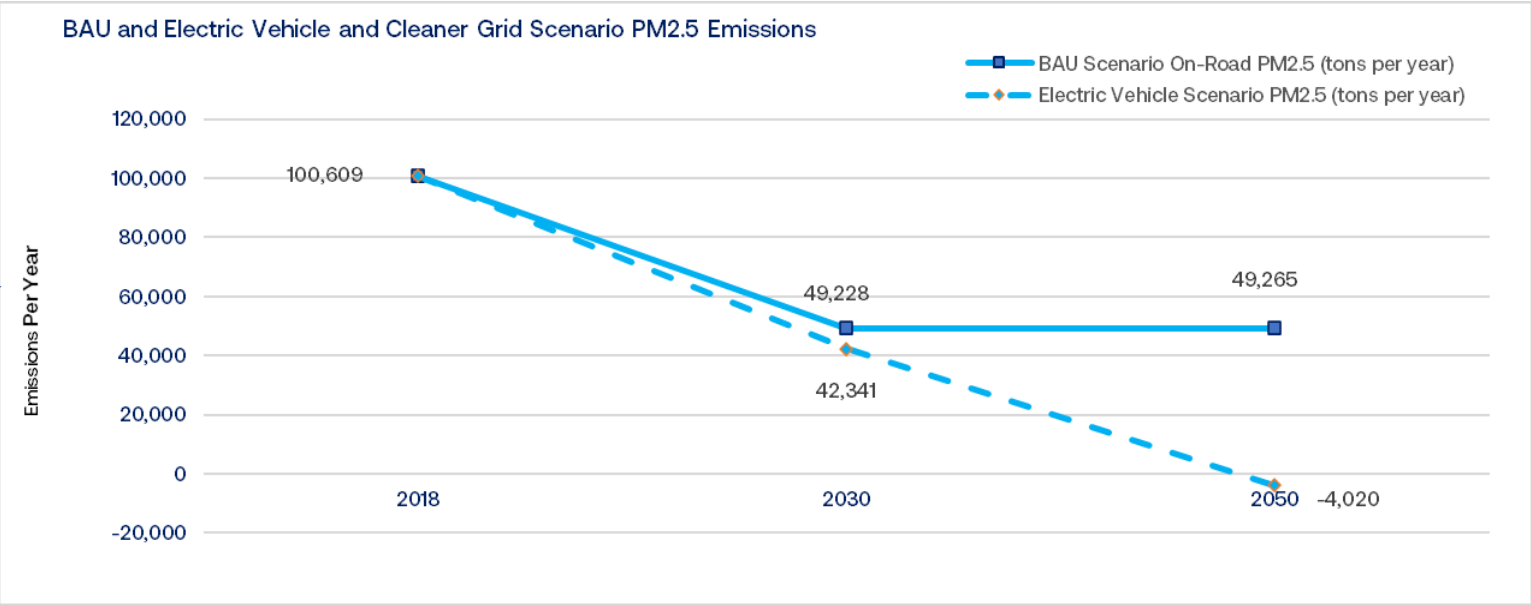
# Comparison of On-Road Emissions Between Baseline and Electric Vehicle Case

## PM<sub>2.5</sub> Emission Reductions

On Road BAU  
Fleet  
vs  
EV Scenario  
Fleet



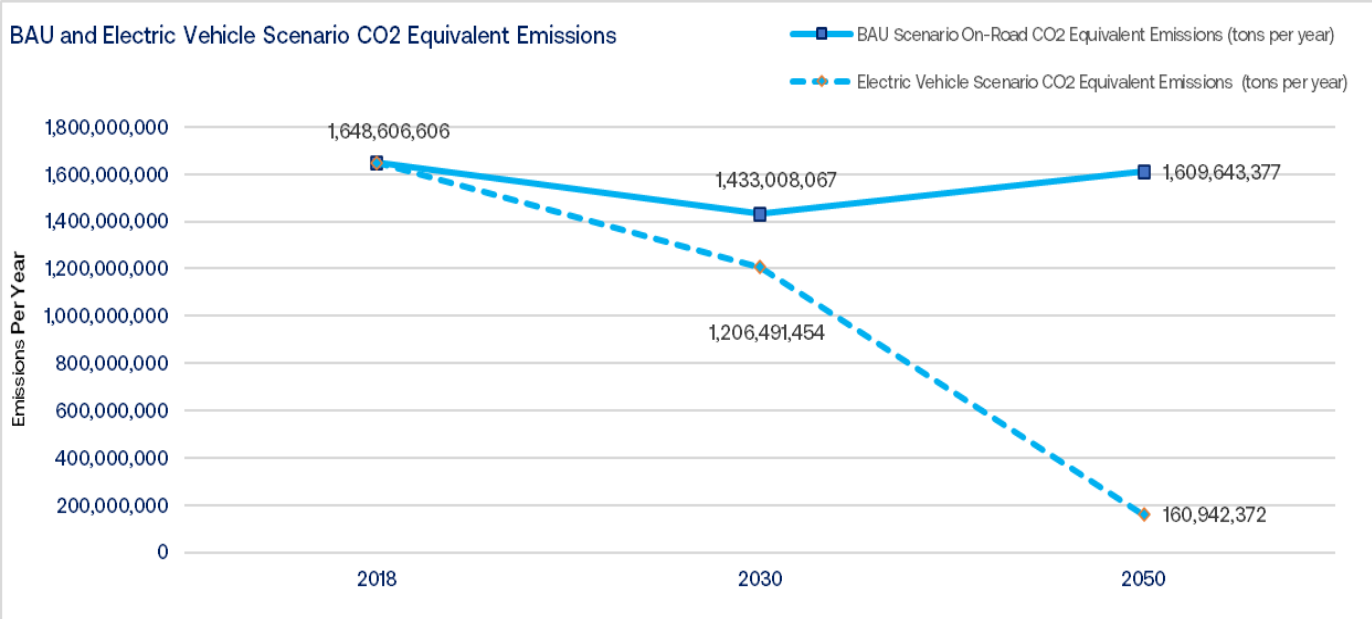
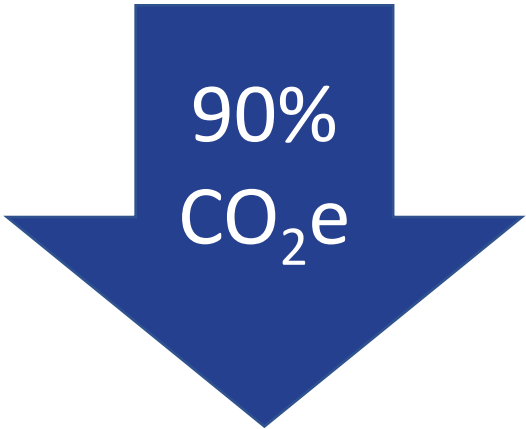
On Road BAU  
Fleet  
vs  
EV Scenario  
Fleet  
+  
Upstream  
Emissions  
Changes



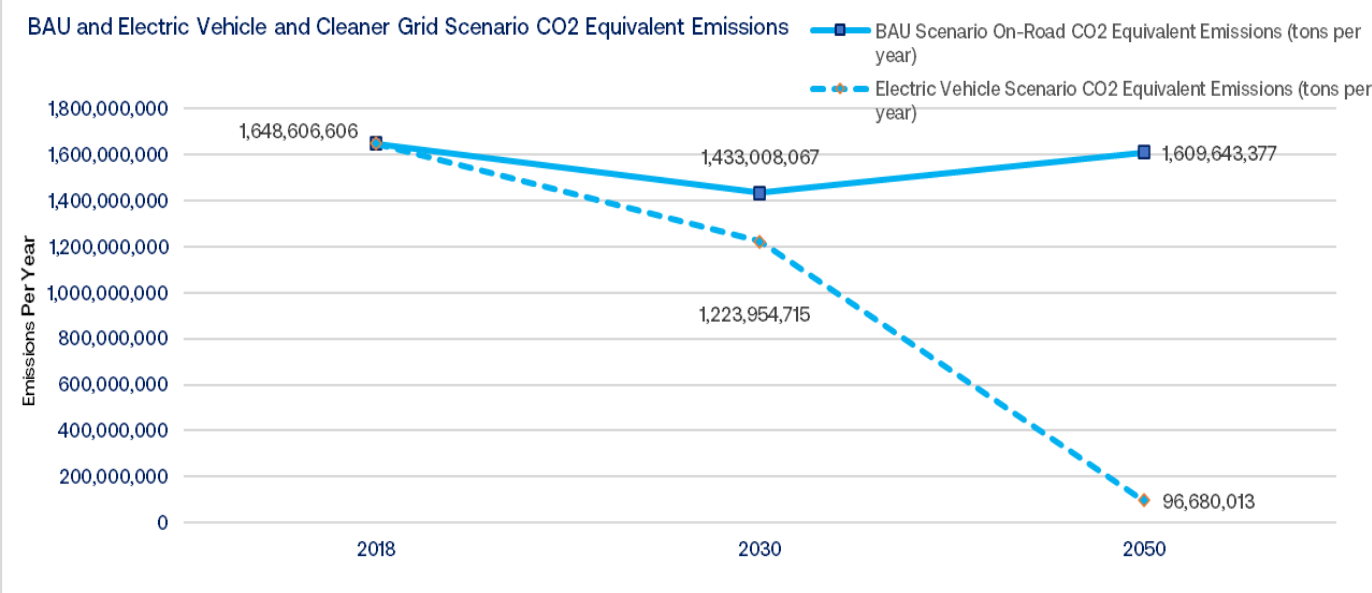
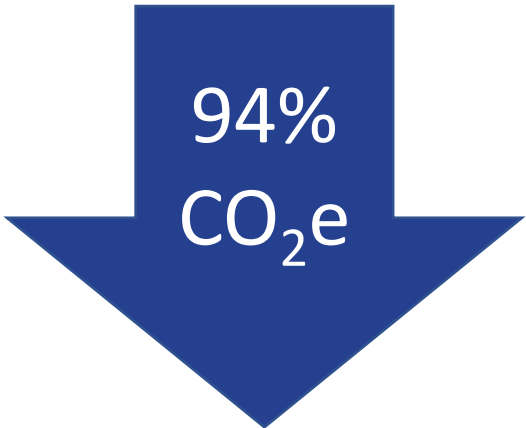
# Comparison of On-Road Emissions Between Baseline and Electric Vehicle Case

## Greenhouse Gas Emission Reductions

On Road BAU Fleet  
vs  
EV Scenario Fleet



On Road BAU Fleet  
vs  
EV Scenario Fleet  
+  
Upstream Emissions  
Changes



# Health Benefits of Avoided Emissions in 2050

**\$72 Billion in Health Benefits**  
due to emission reductions in 2050

**6,300**

Premature Deaths  
Avoided

**93,300**

Asthma  
Attacks  
Avoided

**416,000**

Lost  
Work Days  
Avoided

# Climate Benefits of Avoided Emissions in 2050

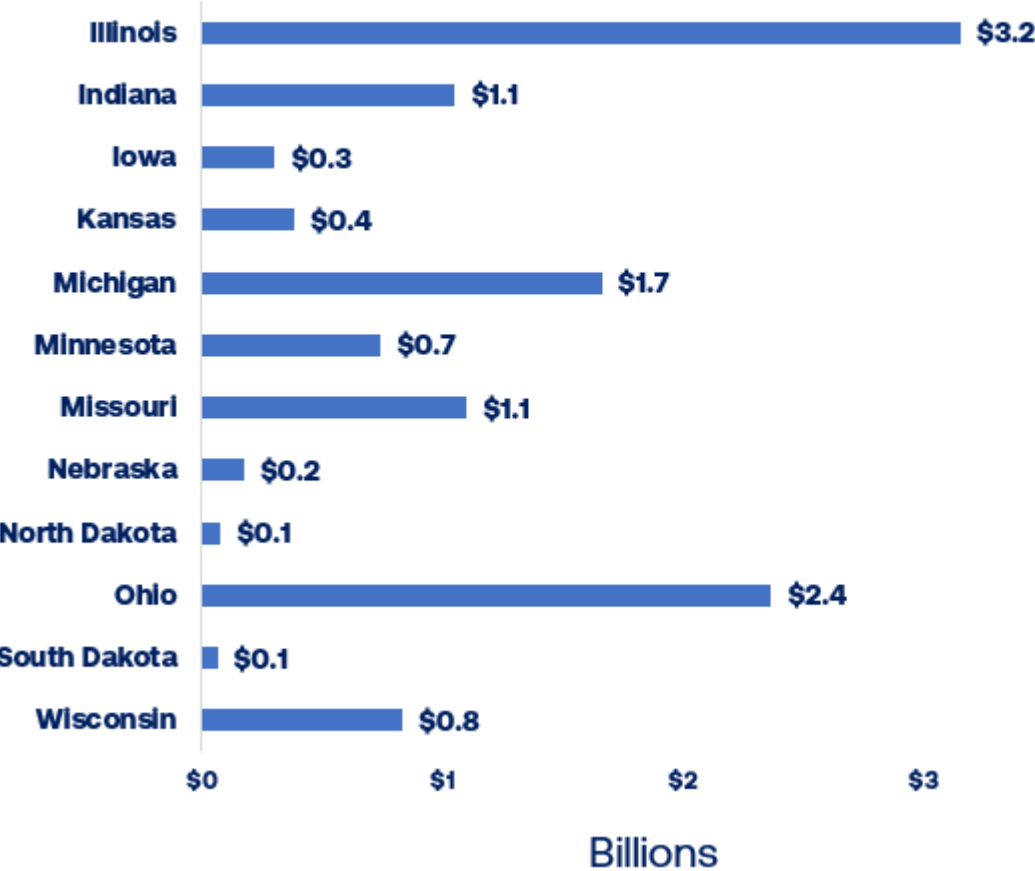
**\$113 Billion in Climate Benefits**  
due to emission reductions in 2050

**1.5**

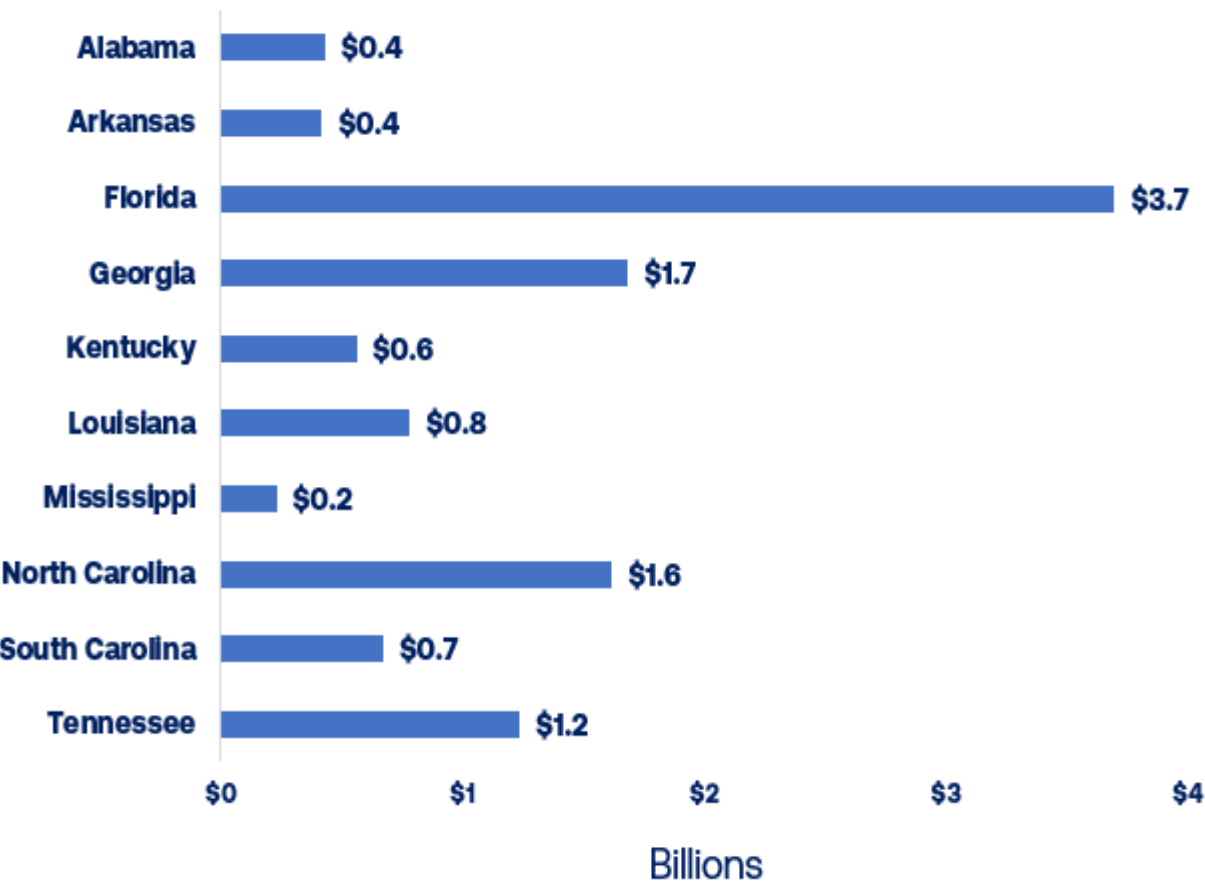
Billion Metric Tons  
of CO<sub>2</sub>e

# State-Level Results

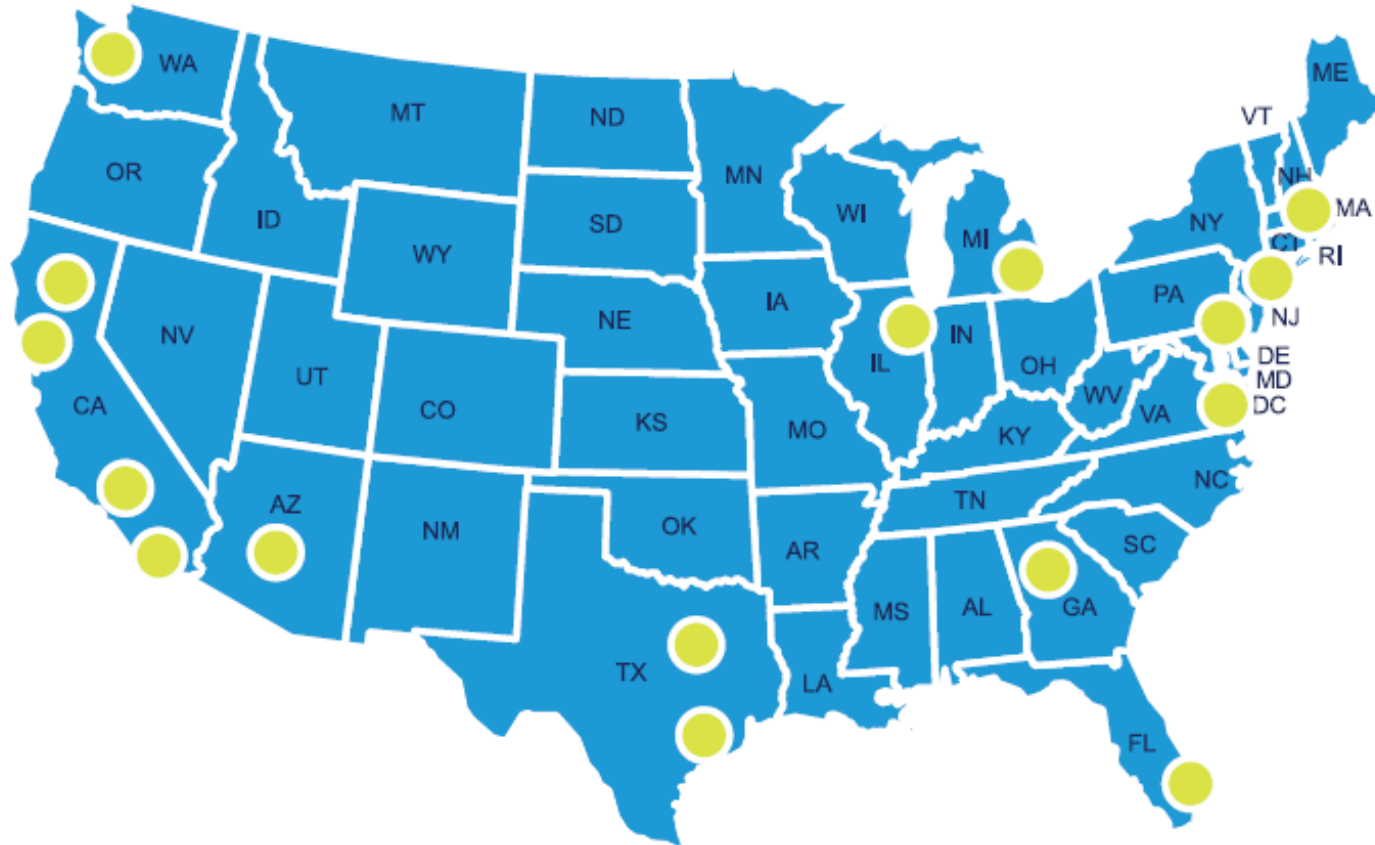
**Midwestern States  
Total 2050 State Health Benefit**



**Southern States  
Total 2050 State Health Benefit**



# Metropolitan Area Results



Metro Area	2050 Health Benefits
Los Angeles, CA	\$14,185,163,117
New York, NY	\$5,191,191,434
San Francisco, CA	\$3,638,114,607
Chicago, IL	\$2,875,776,986
Dallas, TX	\$2,094,390,070
Washington, DC	\$2,007,786,421
San Diego, CA	\$1,934,303,928
Houston, TX	\$1,704,274,597
Miami, FL	\$1,442,342,868
Philadelphia, PA	\$1,441,391,523
Atlanta, GA	\$1,358,920,809
Boston, MA	\$1,185,120,806
Detroit, MI	\$1,145,075,305
Seattle, WA	\$1,018,047,240
Phoenix, AZ	\$959,667,714
Sacramento, CA	\$893,473,382



## State-Level Results due to emission reductions in 2050

### Illinois Health Benefits

**\$3.2 Billion**

- Health Impacts Avoided
- 275 deaths
  - 4,100 asthma attacks
  - 18,700 lost work days



### Chicago Metro Area\* Health Benefits

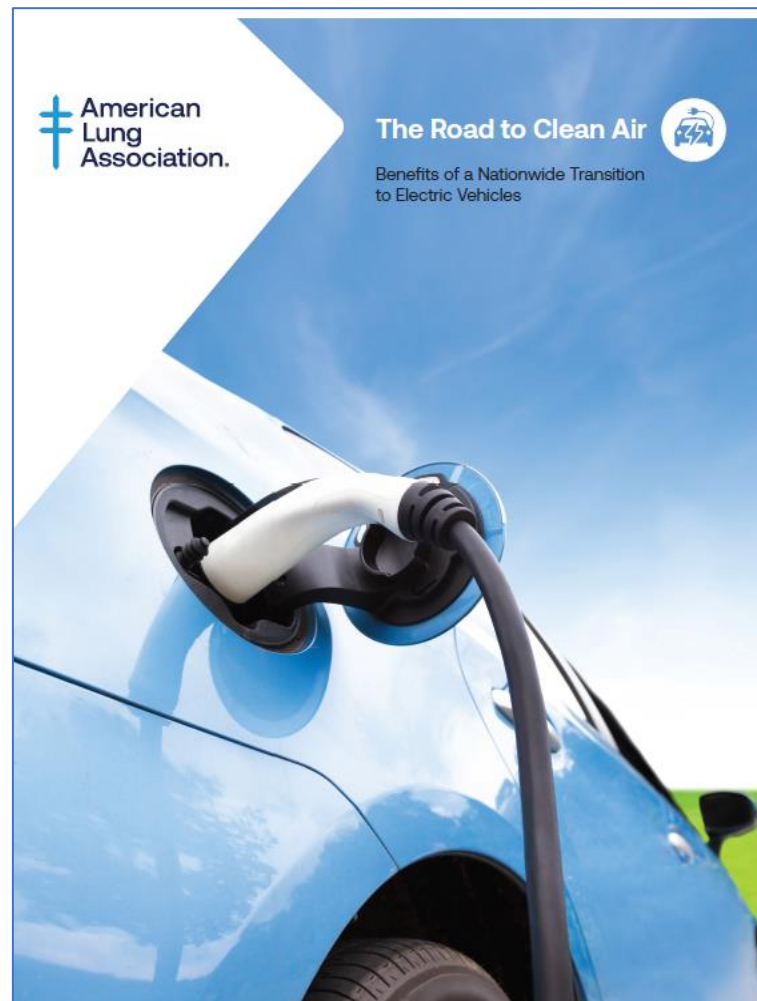
**\$2.9 Billion**

- Health Impacts Avoided
- 250 deaths
  - 3,700 asthma attacks
  - 17,000 lost work days

*\*Chicago Metro Area results include counties in Illinois, Indiana and Wisconsin based on Combined Statistical Area designation by the U.S. Office of Management and Budget.*

# Resources

- <https://www.lung.org/clean-air/electric-vehicle-report>
- Regional Fact Sheets
- Report Document
- Technical Report





## The Road to Clean Air

Benefits of a Nationwide Transition to Electric Vehicles



### Fact Sheet: Mid-Atlantic States

The American Lung Association's "The Road to Clean Air" report highlights major health and climate change benefits possible through a shift away from polluting vehicles toward electric cars, buses and trucks. The transportation sector is nation's largest contributor to the public health threats of climate change and air pollution.

The transition to electric vehicles powered by increasing levels of zero-emission energy sources would benefit residents across the United States, and especially those most burdened by nearby highways, truck and bus routes, ports, warehouses and other transportation hubs.

Nationally, electric vehicle usage could yield up to \$72 billion in avoided health costs and \$113 billion in avoided climate change impacts in 2050, when compared with a fleet of combustion vehicles.

**In the Mid-Atlantic States, 2050 emission reduction benefits reach:**

- \$11.6 billion in avoided health costs
- 1,000 lives saved
- 14,000 avoided asthma attacks
- 65,000 avoided lost work days



#### Mid-Atlantic States Total 2050 State Health Benefit

State	Total 2050 State Health Benefit (\$ Billions)
Delaware	\$0.2
Maryland	\$1.3
New Jersey	\$1.9
New York	\$4.0
Pennsylvania	\$2.4
Virginia	\$1.3
Washington, D.C.	\$0.1

#### Mid-Atlantic Metropolitan Areas Total 2050 Health Benefit

Metropolitan Area	Total 2050 Health Benefit (\$ Billions)
New York, NY	\$6.2
Philadelphia, PA	\$1.4
Washington, DC	\$2.0

Note: Metropolitan Areas can cross state borders, and include counties identified within Combined Statistical Areas as defined by Office of Management and Budget.

Read more at: [Lung.org/ev](https://www.lung.org/ev)

For more information, please contact:  
email  
phone

# When you can't breathe, nothing else matters!







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